

THE STATUS OF *JUNCUS MARGINATUS* (JUNCACEAE) IN CALIFORNIA

PETER F. ZIKA

WTU Herbarium, Box 355325, University of Washington, Seattle, WA 98195-5325
Zikap@comcast.net

ABSTRACT

Juncus marginatus is native in eastern North America, west to Arizona. Recent California treatments considered it a native species, and rare. Its collection history in Oregon and California was examined to determine if those populations are native or introduced. The earliest Oregon records are 1991 from disturbed sites. The earliest California records are from disturbed mining sites in 1965 and 1971. At least one California population is associated with exotic cranberry, *Vaccinium macrocarpon*, a documented vector for transport of propagules of wetland species native to eastern North America. Eight other *Juncus* species native to eastern North America are naturalized in the Pacific States, lending support to introduced status for *J. marginatus* in California. Subsequent discoveries of *J. marginatus* in Oregon and California suggest the species is expanding its adventive range into less disturbed plant communities.

Key Words: California, cranberry, Juncaceae, *Juncus marginatus*, Oregon, *Vaccinium macrocarpon*.

While preparing the *Juncus* treatment for the revision of the Jepson Manual (Swab 1993), I received several queries from conservation biologists about the status of *Juncus marginatus* Rostk., red-anthered or grass-leaved rush. This rarely seen species was treated as a native plant in California by Swab (1993). The most recent taxonomic treatments do not accept any varieties of *J. marginatus*, and give its native range as eastern North America, from Nova Scotia to Florida and Bermuda, and west to South Dakota and Arizona. Its natural distribution also extends south to Mexico, Cuba, the mountains of Central America, Venezuela, and southeastern South America (Balslev 1996; Brooks 2000; Kirschner et al. 2002). Because there are few populations in California, it was included on several lists of rare native species (e.g., Skinner and Pavlik 1994; California Department of Fish and Game 2008). This note attempts to clarify the native or introduced status of *J. marginatus* in California, by examining the known collecting history and comparing it to records for the species in Oregon.

All authors consider *Juncus marginatus* a native in Arizona, where the collecting record extends back to at least 1882 in the Santa Catalina Mountains (*Pringle s.n.* NY, P, US). This contrasts strongly with the earliest collection in California, a 1965 gathering from Nevada Co. (Buckeye Diggings, edge of placer diggings, *G. True & J. T. Howell 2321* CAS). Pendell (1984) mentioned another Nevada Co. population found in 1971 on placer diggings at North Columbia (*G. True 6886* CAS), where the plants were common at a site excavated for gold and “nothing green was left rooted” by 1884, after massive hydraulic mining left “a lifeless wasteland.” How did *J. marginatus* arrive in the marshes that slowly revegetated the placer mines?

An answer is suggested by the abundance of naturalized cranberry (*Vaccinium macrocarpon* Aiton) at the North Columbia placer diggings (Pendell 1984). Cranberries are native to eastern North America, west to Minnesota. *Vaccinium macrocarpon* must have been introduced to the diggings, and has since spread to become common there. It is not known as a wild plant elsewhere in California. When cuttings of cranberry vines were introduced for commercial fruit production in Oregon, Washington, and British Columbia, one result was the establishment of weedy populations of 22 vascular plant species native to eastern North America (Zika 2000a, b, 2003). Many of these were wetland inhabitants with small seeds that readily established themselves in the cranberry farms of the west coast. Among them were several *Juncus*, *Hypericum*, and *Carex* species. Thus it seems possible that *Juncus marginatus* could have arrived in California as seed mingled among the introduced vines of *Vaccinium macrocarpon* at the North Columbia diggings. I propose this as a reasonable explanation for its occurrence in California. A less attractive alternative is to treat *J. marginatus* as a rare disjunct native on disturbed mine rubble, which Kartesz and Meacham (2003) map some 900 km northwest of the closest known indigenous stands in Arizona.

Populations of *Juncus marginatus* in Oregon are 550 km north of the Nevada Co. stations, in the densely settled Willamette Valley. *Juncus marginatus* was first reported there in 1991, as a likely adventive in ditches and wet roadsides in Lane Co. (Zika 1991). I have since observed it spreading in disturbed sites, but also invading relatively undisturbed seasonal wetlands in Lane and Linn Cos. (Zika 23346 CHSC, RSA, UC, WTU), where it would appear native (among the

indigenous and endemic wet prairie species) if the recent colonization history were unknown.

A third California record for *Juncus marginatus* was located in 2003 in a rocky seep in Tehama Co., by Barbara Ertter (Ertter 18256 UC, WTU). Based on the label data, this habitat is similar to the Linn Co., Oregon site mentioned above. Given the contemporary spread of the species in Oregon, I interpret the Tehama Co. site as another recent colonization.

A final piece of supporting evidence is that California wetlands shelter several other little known and introduced rushes from eastern North America, including *Juncus diffusissimus* Buckley, *J. effusus* L. subsp. *solutus* (Fernald & Wiegand) Hämet-Ahti, and *J. elliottii* Chapm. To this can be added Pacific Northwest populations of five more naturalized eastern North American rushes: *J. brachycarpus* Engelm., *J. brevicaudatus* (Engelm.) Fernald, *J. canadensis* J. Gay, *J. pelocarpus* E. Mey., and *J. pylaei* Laharpe (Zika 2000a, 2003). Thus it is not extraordinary for eastern *Juncus* to successfully colonize western North America in the last century.

Taken together and summarized, the data suggest *J. marginatus* is naturalized, not native, in both California and Oregon.

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LITERATURE CITED

- BALSLEV, H. 1996. Juncaceae. Flora Neotropica Monograph 68:1–168.
- BROOKS, R. E. 2000. *Juncus* Linnaeus subg. *Graminifolii*. Pp. 225–233 in Flora of North America Editorial Committee (eds.), Flora of North America North of Mexico, Vol. 22, Oxford University Press, NY.
- CALIFORNIA DEPARTMENT OF FISH AND GAME, NATURAL DIVERSITY DATABASE. 2008. Special vascular plants, bryophytes, and lichens list. California Department of Fish and Game, Sacramento, CA. Website <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPPlants.pdf> [accessed 26 January, 2010].
- KARTESZ, J. T. AND C. A. MEACHAM. 2003. Synthesis of the North American Flora, CD-ROM Version 2.0. J. T. Kartesz & Phylosystems Corporation, Chapel Hill, NC.
- KIRSCHNER, J., H. BALSLEV, L. J. NOVARA, AND K. L. WILSON. 2002. *Juncus* subg. *Juncus* sect. *Graminifolii*. Species Plantarum: Flora of the World 7:27–57.
- PENDELL, D. 1984. A freshwater marsh at North Columbia diggings. *Fremontia* 12(2):11–14.
- SKINNER, M. W. AND B. M. PAVLIK, (eds.). 1994. Inventory of rare and endangered vascular plants of California, 5th ed. California Native Plant Society, Sacramento, CA.
- SWAB, J. C. 1993. Juncaceae, rush family. Pp. 1157–1166 in J. C. Hickman (ed.), The Jepson manual: higher plants of California. University of California Press, Berkeley, CA.
- ZIKA, P. F. 1991. Noteworthy collections, Oregon. *Madroño* 38:204–205.
- . 2000a. Unexpected rushes (*Juncus*) in Oregon's cranberry fields. *Oregon Flora Newsletter* 6(1):3.
- . 2000b. Cranberries and the Clusiaceae. *Douglasia* 24(2):7–11.
- . 2003. Notes on the provenance of some eastern wetland species disjunct in western North America. *Journal of the Torrey Botanical Society* 130:43–46.